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Day : Thursday
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Inventor Name Search Result

Your Search was:

Last Name = HUA

First Name = XI

Application#	Patent#	Status	Date Filed	Title	Inventor Name
<u>60364896</u>	Not Issued	159	03/14/2002	ENHANCED INHIBITION OF EPITHELIAL AND LEUKEMIA CELLS BY COMBINATION OF TGF-BETA AND RETINOIC ACID	HUA, XIANXIN
<u>60329339</u>	Not Issued	159	10/16/2001	DIRECT TRANSMITTER SELF-CALIBRATION TECHNIQUE	HUANG, XINPING
<u>60310475</u>	Not Issued	159	08/08/2001	ENHANCED MANEUVERABILITY BY ACTIVE VORTEX CONTROL WITH MOVEABLE BLOWING JET	HUANG, XINGZHONG
<u>60291148</u>	Not Issued	159	05/15/2001	PARSING OF NESTED INTERNET ELECTRONIC MAIL DOCUMENTS	HUANG, XIAOLAN
<u>60289990</u>	Not Issued	159	05/10/2001	METHODS FOR PREVENTING NEURONAL CELL DEGENERATION AND FOR STIMULATING AXON REGENERATION WITH LITHIUM	HUANG, XIZHONG
<u>60283170</u>	Not Issued	159	04/10/2001	LONG LASTING ANTI-BACTERIAL BIOCONJUGATES	HUANG, XICAI
<u>60282967</u>	Not Issued	159	04/11/2001	HYBRID NANOSTRUCTURED MATERIALS BASED ON II-VI SEMICONDUCTORS	HUANG, XIAOYING
<u>60269973</u>	Not Issued	159	02/20/2001	MICROCHIP ELECTROSPRAY DEVICE AND COLUMN WITH AFFINITY ADSORBENTS AND USE OF THE SAME	HUANG, XIAN

<u>60267832</u>	Not Issued	159	02/09/2001	OPTIC NERVE REGENERATION IN BCL-2 TRANSGENIC MICE	HUANG, XIZHONG
<u>60210890</u>	Not Issued	159	06/09/2000	SURFACE MODIFICATION OF A POROUS POLYMER MONOLITH AND PRODUCTS THEREFROM	HUANG, XIAN
<u>60200284</u>	Not Issued	159	04/28/2000	USE OF RELAXIN TO TREAT DISEASES RELATED TO VASOCONSTRICTION	HUANG, XINFAN
<u>60200001</u>	Not Issued	159	04/27/2000	ACTIVE MATRIX ADDRESSED BISTABLE REFLECTIVE CHOLESTERIC DISPLAYS	HUANG, XIAO-YANG
<u>60184808</u>	Not Issued	159	02/24/2000	METHODS FOR DETERMINING SINGLE NUCLEOTIDE VARIATIONS	HUANG, XIAOHUA C.
<u>60181408</u>	Not Issued	159	02/09/2000	USE OF RELAXIN TO TREAT DISEASE RELATED TO VASOCONSTRICTION	HUANG, XINFAN
<u>10610105</u>	Not Issued	020	06/30/2003	CONTENT-BASED DYNAMIC PHOTO-TO-VIDEO METHODS AND APPARATUSES	HUA, XIAN-SHENG
<u>10370314</u>	Not Issued	020	02/19/2003	AUTOMATIC DETECTION AND SEGMENTATION OF MUSIC VIDEOS IN AN AUDIO/VIDEO STREAM	HUA, XIAN-SHENG
<u>10368235</u>	Not Issued	030	02/18/2003	LEARNING-BASED AUTOMATIC COMMERCIAL CONTENT DETECTION	HUA, XIAN-SHENG
<u>10286348</u>	Not Issued	030	11/01/2002	SYSTEMS AND METHODS FOR AUTOMATICALLY EDITING A VIDEO	HUA, XIAN-SHENG
<u>10222606</u>	Not Issued	041	08/16/2002	ADDITIVE COMPOSITION FOR GEARBOX OIL	HUA, XIULING
<u>09953798</u>	Not Issued	030	09/17/2001	SYSTEM AND ELECTRONIC DEVICE FOR PROVIDING A MULTI-CARRIER SPREAD SPECTRUM SIGNAL	HUANG, XIAOJING
<u>09949623</u>	<u>6504461</u>	150	09/10/2001	OPEN MAGNET WITH RECESSED FIELD SHAPING COILS	HUANG, XIANRUI
<u>09948756</u>	Not Issued	161	09/10/2001	ALLELE DETECTION USING PRIMER EXTENSION WITH SEQUENCE-CODED IDENTITY TAGS	HUANG, XIAOHUA

<u>09941105</u>	Not Issued	030	08/28/2001	PARSING OF NESTED INTERNET ELECTRONIC MAIL DOCUMENTS	HUANG, XIAOLAN
<u>09939809</u>	<u>6598391</u>	150	08/28/2001	CONTROL FOR ELECTRO-HYDRAULIC VALVE ARRANGEMENT	HUANG, XIAODONG
<u>09919455</u>	Not Issued	161	07/31/2001	NOCATHIACIN ANTIBIOTICS PREPARED BY BIOTRANSFORMATION OR CHEMICAL METHODS	HUANG, XIAOHUA
<u>09884396</u>	<u>6524242</u>	150	06/19/2001	NON-CONTACT METHOD FOR MEASURING AMOUNT OF SEBUM OR OIL ON SUBSTRATE IN REAL TIME USING FLUORESCENCE DYE	HUA, XI YUAN
<u>09884388</u>	Not Issued	030	06/19/2001	MICROEMULSION FACIAL WASHES COMPRISING SPECIFIC OILS	HUA, XI YUAN
<u>09837986</u>	<u>6627778</u>	150	04/19/2001	SELECTIVE HYDROGENATION PROCESS FOR REMOVING C10 -C16 DIOLEFINS	HUANG, XIAOLEI
<u>09836640</u>	Not Issued	161	04/18/2001	GRAPHIC CONTROLLER FOR ACTIVE MATRIX ADDRESSED BISTABLE REFLECTIVE CHOLESTERIC DISPLAYS	HUANG, XIAO-YANG
<u>09836329</u>	Not Issued	161	04/18/2001	OPERATING METHOD FOR ACTIVE MATRIX ADDRESSED BISTABLE REFLECTIVE CHOLESTERIC DISPLAYS	HUANG, XIAO-YANG
<u>09836319</u>	Not Issued	071	04/18/2001	ACTIVE MATRIX ADDRESSED BISTABLE REFLECTIVE CHOLESTERIC DISPLAYS	HUANG, XIAO-YANG
<u>09818416</u>	Not Issued	092	03/27/2001	TREATMENT OF ACUTE LUNG INJURY AND FIBROSIS WITH BETA6-SPECIFIC ANTIBODIES	HUANG, XIAOZHU
<u>09810234</u>	Not Issued	161	03/19/2001	METHOD FOR EXTRACTING OLEAGINOUS SUBSTANCES FROM GANODERMA LUCIDUM SPORES	HUANG, XIAO-NI
<u>09764698</u>	<u>6596988</u>	150	01/18/2001	SEPARATION MEDIA,	HUANG, XIAN

				MULTIPLE ELECTROSPRAY NOZZLE SYSTEM AND METHOD	
<u>09682589</u>	Not Issued	071	09/25/2001	BALANCED QUENCH PROTECTION CIRCUIT	HUANG, XIANRUI
<u>09658070</u>	<u>6515433</u>	150	09/11/2000	GAS DISCHARGE FLUORESCENT DEVICE	HUANG, XI
<u>09657431</u>	Not Issued	071	09/07/2000	LONG LASTING ANTI-ANGIOGENIC PEPTIDES	HUANG, XICAI
<u>09657295</u>	Not Issued	161	09/07/2000	METHODS AND COMPOSITIONS FOR PRODUCING LONG LASTING ANTINEOPLASTIC AGENTS	HUANG, XICAI
<u>09623543</u>	Not Issued	041	09/05/2000	LONG LASTING ANTI-ANGIOGENIC PEPTIDES	HUANG, XICAI
<u>09575081</u>	Not Issued	093	05/19/2000	NOVEL ORGANIC ANION TRANSPORT PROTEINS	HUANG, XIN
<u>09544025</u>	Not Issued	071	04/05/2000	USE OF ERBB RECEPTOR LIGANDS IN TREATING DIABETES	HUANG, XIAOJIAN
<u>09543789</u>	<u>6268152</u>	150	04/06/2000	HYBRIDIZATION AND SEQUENCING OF NUCLEIC ACIDS	HUANG, XIAOHUA
<u>09536841</u>	Not Issued	041	03/27/2000	UNIVERSAL ARRAYS	HUANG, XIAOHUA
<u>09510378</u>	Not Issued	041	02/22/2000	ARRAYS OF NUCLEIC ACID PROBES ON BIOLOGICAL CHIPS	HUANG, XIAOHUA C.
<u>09502799</u>	Not Issued	160	02/11/2000	METHOD FOR DIRECT METAL MAKING BY MICROWAVE ENERGY	HUANG, XIAODI
<u>09502518</u>	<u>6277168</u>	150	02/14/2000	METHOD FOR DIRECT METAL MAKING BY MICROWAVE ENERGY	HUANG, XIAODI
<u>09497420</u>	<u>6355211</u>	150	02/07/2000	METHOD FOR MANUFACTURING HIGH PERFORMANCE COMPONENTS	HUANG, XIAODI
<u>09468854</u>	Not Issued	041	12/21/1999	MICROBIAL TRANSFORMATION METHOD FOR THE PREPARATION OF AN EPOTHILONE	HUANG, XIAOHUA
<u>09341399</u>	<u>6468744</u>	150	11/17/1999	ANALYSIS OF GENETIC	HUANG,

				POLYMORPHISMS AND GENE COPY NUMBER	XIAOHUA C.
<u>09194111</u>	<u>6263227</u>	150	01/19/1999	APPARATUS FOR IMAGING MICROVASCULAR BLOOD FLOW	HUANG, XIABING
<u>08997021</u>	Not Issued	161	12/23/1997	METHOD FOR IMPROVED PRECIOUS METAL RECOVERY	HUA , XI YUAN

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Your Search was:

Last Name = HUA

First Name = XI

Application#	Patent#	Status	Date Filed	Title	Inventor Name
<u>60408479</u>	Not Issued	020	09/03/2002	TOTAL SYNTHESIS OF DIAZONAMIDE A	HUANG, XIANHAI
<u>60403818</u>	Not Issued	159	08/15/2002	AUTOMATED MLC LEAF POSITION LOCALIZATION AND LABELING WITH A NEW IMAGING PARAMETER DRIVEN TEMPLATE MATCHING ALGORITHM	HUANG, XIAOLEI
<u>60403608</u>	Not Issued	159	08/13/2002	LONG-LASTING GLYCOPEPTIDE DERIVATIVES	HUANG, XICAI
<u>60355068</u>	Not Issued	159	02/07/2002	SYNTHESIS OF SULFAMIDATES	HUANG, XIANHAI
<u>60353265</u>	Not Issued	159	02/01/2002	OPAQUE POLYESTER CONTAINERS	HUANG, XIAOYAN
<u>60348901</u>	Not Issued	159	10/29/2001	LONG-LASTING VINORELBINE AND GEMCITABINE DERIVATIVES FOR TREATING CANCER	HUANG, XICAI
<u>60344192</u>	Not Issued	159	10/19/2001	AUTOMOBILE AS INTERMEDIATE MOBILE BASE STATION AND/OR REPEATER FOR WIRELESS COMMUNICATION BETWEEN MOBILE TERMINALS AND FIXED BASE STATION	HUANG, XI
<u>60336950</u>	Not Issued	159	10/26/2001	SAMPLE TUBE ARRAY	HUANG, XIAN
<u>60329339</u>	Not Issued	159	10/16/2001	DIRECT TRANSMITTER SELF-CALIBRATION TECHNIQUE	HUANG, XINPING
<u>60327049</u>	Not Issued	159	10/04/2001	HIGH-SPEED AND LOW POWER CONTENT ADDRESSABLE MEMORY (CAM) SENSING CIRCUITS	HUANG, XIAOHUA

<u>60316305</u>	Not Issued	159	08/31/2001	QUANTUM DOT AND QUANTUM DASH ACTIVE REGION DEVICES	HUANG, XIAODONG
<u>60293174</u>	Not Issued	159	05/25/2001	ACTIVE VORTEX CONTROL WITH MOVEABLE JET	HUANG, XINGZHONG
<u>60274048</u>	Not Issued	159	03/07/2001	LONG LASTING MATRIX METALLOPROTEASE INHIBITORS	HUANG, XICAI
<u>60272617</u>	Not Issued	159	03/01/2001	METHODS FOR STIMULATING AXON REGENERATION WITH LITHIUM	HUANG, XIZHONG
<u>60272307</u>	Not Issued	159	03/02/2001	TECHNIQUES FOR USING QUANTUM DOT ACTIVE REGIONS IN VERTICAL CAVITY SURFACE EMITTING LASERS	HUANG, XIADONG
<u>60242216</u>	Not Issued	159	10/20/2000	USE OF RELAXIN TO TREAT DISEASES RELATED TO VASOCONSTRICTION	HUANG, XINFAN
<u>60231987</u>	Not Issued	159	09/12/2000	METHODS AND COMPOSITIONS FOR PRODUCING LONG LASTING MATRIX METALLOPROTEASE INHIBITORS	HUANG, XICAI
<u>60231182</u>	Not Issued	159	09/07/2000	IMAGE SPATIAL SCALABILITY IN PIXEL DOMAIN AND DCT DOMAIN	HUANG, XIANHUA
<u>60225114</u>	Not Issued	159	08/14/2000	NOCATHIACIN ANTIBIOTICS PREPARED BY BIOTRANSFORMATION OR CHEMICAL METHODS	HUANG, XIAOHUA
<u>60110192</u>	Not Issued	159	11/30/1998	MULTI-METHOD SALES PIPELINE	HUANG, XIAOFEI JEFFREY
<u>10205578</u>	Not Issued	019	07/24/2002	ANALYSIS OF GENETIC POLYMORPHISMS AND GENE COPY NUMBER	HUANG, XIAOHUA C.
<u>10202621</u>	Not Issued	041	07/24/2002	CAM CELLS AND DIFFERENTIAL SENSE CIRCUITS FOR CONTENT ADDRESSABLE MEMORY (CAM)	HUANG, XIAOHUA
<u>10202499</u>	Not Issued	030	07/24/2002	HIGH SPEED AND LOW POWER SENSE CIRCUITS FOR CONTENT ADDRESSABLE MEMORY	HUANG, XIAOHUA
<u>10140239</u>	Not	030	05/07/2002	METHOD FOR	HUANG,

	Issued			MANUFACTURING CLAD COMPONENTS	XIAODI
<u>10136565</u>	Not Issued	030	05/01/2002	METHOD AND APPARATUS FOR COMPUTED TOMOGRAPHY IMAGING	HUANG, XIANGYU
<u>10084628</u>	Not Issued	071	02/25/2002	METHOD AND SYSTEM FOR SERVER-BASED OPERATIONS IN SERVER SYNCHRONIZATION WITH A COMPUTING DEVICE	HUANG, XIAO FEI
<u>10084257</u>	Not Issued	030	02/25/2002	METHOD AND SYSTEM FOR SERVER SYNCHRONIZATION WITH A COMPUTING DEVICE	HUANG, XIAO FEI
<u>10079342</u>	Not Issued	020	02/20/2002	PROTEIN STABILIZING AGENT	HUANG, XIAOLIN
<u>10078843</u>	Not Issued	041	02/19/2002	MICROCHIP ELECTROSPRAY DEVICE AND COLUMN WITH AFFINITY ADSORBENTS AND USE OF THE SAME	HUANG, XIAN
<u>10036048</u>	Not Issued	030	12/31/2001	METHOD AND APPARATUS FOR DETERMINING A CUSTOMER'S LIKELIHOOD OF REUSING A FINANCIAL ACCOUNT	HUANG, XIAO-MING
<u>10035852</u>	Not Issued	030	12/31/2001	METHOD AND APPARATUS FOR DETERMINING A CUSTOMER'S LIKELIHOOD OF PAYING OFF A FINANCIAL ACCOUNT	HUANG, XIAO-MING
<u>10015261</u>	Not Issued	030	12/12/2001	VEHICLE TELEMATICS RADIO OPERABLE FOR PROVIDING AND DISABLING DRIVING DIRECTIONS TO PRE-SELECTED DESTINATIONS	HUANG, XIAOPEI
<u>10011161</u>	Not Issued	030	12/05/2001	PROVIDING A PARTIALLY ENCRYPTED DATA PACKET IN A SPREAD SPECTRUM SIGNAL	HUANG, XIAOJING
<u>10006885</u>	Not Issued	093	12/10/2001	ELECTRO-HYDRAULIC VALVE CONTROL SYSTEM AND METHOD	HUANG, XIAODONG
<u>10005778</u>	Not Issued	030	11/08/2001	FILTER BANK AND RECEIVER FOR PROCESSING CONTINUOUS PHASE MODULATED SIGNALS	HUANG, XIAOJING
<u>09973243</u>	<u>6483563</u>	150	10/09/2001	BRIGHTNESS ENHANCEMENT	HUANG,

				FOR BISTABLE CHOLESTERIC DISPLAYS	XIAO-YANG
<u>09878495</u>	Not Issued	161	06/11/2001	SURFACE MODIFICATION OF A POROUS POLYMER MONOLITH AND PRODUCTS THEREFROM	HUANG, XIAN
<u>09861976</u>	Not Issued	041	05/21/2001	LIGHTER WITH A LOCK-OFF SWITCH	HUANG, XINHUA
<u>09861946</u>	<u>6443727</u>	150	05/21/2001	LIGHTER WITH A LOCK-OFF MECHANISM	HUANG, XINHUA
<u>09854937</u>	<u>6608409</u>	150	05/15/2001	HIGH TEMPERATURE SUPER-CONDUCTING ROTOR HAVING A VACUUM VESSEL AND ELECTROMAGNETIC SHIELD AND AN ASSEMBLY METHOD	HUANG, XIANRUI
<u>09810213</u>	<u>6440420</u>	150	03/19/2001	METHOD FOR EXTRACTING OLEAGINOUS SUBSTANCES FROM GERMINATION-ACTIVATED GANODERMA LUCIDUM SPORES	HUANG, XIAO-NI
<u>09797405</u>	Not Issued	030	03/01/2001	SYSTEM AND METHOD FOR PROCESSING CUSTOMER REQUESTS RELATING TO UNSOLICITED COMMERCIAL EMAIL AND OTHER SERVICE DISRUPTIONS	HUANG, XIAOLAN
<u>09792413</u>	Not Issued	161	02/23/2001	METHODS FOR DETERMINING SINGLE NUCLEOTIDE VARIATIONS	HUANG, XIAOHUA C.
<u>09780752</u>	Not Issued	041	02/09/2001	USE OF RELAXIN TREAT DISEASES RELATED TO VASOCONSTRICTION	HUANG, XINFAN
<u>09780737</u>	Not Issued	030	02/09/2001	DRIVE SCHEMES FOR GRAY SCALE BISTABLE CHOLESTERIC REFLECTIVE DISPLAYS UTILIZING VARIABLE FREQUENCY PULSES	HUANG, XIAO-YANG
<u>09776768</u>	Not Issued	061	02/06/2001	IDENTIFYING A BASE IN A NUCLEIC ACID	HUANG, XIAOHUA
<u>09731414</u>	<u>6342578</u>	150	12/06/2000	COPOLYESTER WITH HIGH CARBOXYL END GROUPS AND A METHOD FOR MAKING	HUANG, XIAOYAN
<u>09682880</u>	Not Issued	030	10/29/2001	MAGNETIC HOMOGENEITY DESIGN METHOD	HUANG, XIANRUI
<u>09519090</u>	<u>6582908</u>	150	03/06/2000	OLIGONUCLEOTIDES	HUANG,

					XIAOHUA C.
<u>09510014</u>	<u>6274212</u>	150	02/22/2000	METHOD TO DECREASE THE ACETALDEHYDE CONTENT OF MELT-PROCESSED POLYESTERS	HUANG, XIAOYAN
<u>09365695</u>	<u>6316601</u>	150	08/02/1999	ANTIBODIES SPECIFIC FOR B6 INTEGRINS	HUANG, XIAOZHU

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Inventor Name Search Result

Your Search was:

Last Name = VAN GORKOM

First Name = LEONARD

Application#	Patent#	Status	Date Filed	Title	Inventor Name
<u>09884396</u>	<u>6524242</u>	150	06/19/2001	NON-CONTACT METHOD FOR MEASURING AMOUNT OF SEBUM OR OIL ON SUBSTRATE IN REAL TIME USING FLUORESCENCE DYE	VAN GORKOM, LEONARD
<u>09884395</u>	<u>6475144</u>	150	06/19/2001	NON-CONTACT METHOD FOR MEASURING AMOUNT OF SKIN SEBUM OR OIL IN REAL TIME USING FIBER OPTIC PROBE	VAN GORKOM, LEONARD
<u>09884388</u>	Not Issued	030	06/19/2001	MICROEMULSION FACIAL WASHES COMPRISING SPECIFIC OILS	VAN GORKOM, LEONARD
<u>08668151</u>	<u>5731277</u>	150	06/21/1996	AUTOMATIC DISHWASHING COMPOSITIONS CONTAINING ALUMINUM TETRAHYDROXIDE	VAN GORKOM , LEONARD

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LEONARD

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Inventor Name Search Result

Your Search was:

Last Name = ARONSON

First Name = MICHAEL

6 265367
 6 342470
 6 399045

Application#	Patent#	Status	Date Filed	Title	Inventor Name
<u>60237073</u>	Not Issued	159	09/30/2000	INTERNET CLOCK RADIO	ARONSON, MICHAEL
<u>29040064</u>	<u>D376148</u>	150	06/09/1995	ELECTRONIC VOICE ANNUNCIATOR	ARONSON, MICHAEL L.
<u>10425206</u>	Not Issued	030	04/29/2003	WET-SKIN TREATMENT COMPOSITIONS	ARONSON, MICHAEL PAUL
<u>10340468</u>	Not Issued	030	01/10/2003	METHODS OF CLEANSING, MOISTURIZING AND REFRESHING USING MULTIPHASE BARS HAVING ARTISAN-CRAFTED APPEARANCE	ARONSON, MICHAEL PAUL
<u>10340457</u>	Not Issued	030	01/10/2003	EXTRUDED MULTIPHASE BARS EXHIBITING ARTISAN-CRAFTED APPEARANCE	ARONSON, MICHAEL PAUL
<u>10340153</u>	Not Issued	030	01/10/2003	PROCESS FOR MAKING EXTRUDED MULTIPHASE BARS EXHIBITING ARTISAN-CRAFTED APPEARANCE	ARONSON, MICHAEL PAUL
<u>10050280</u>	Not Issued	095	01/16/2002	WET-SKIN TREATMENT COMPOSITIONS	ARONSON, MICHAEL PAUL
<u>10050238</u>	Not Issued	041	01/16/2002	PROCESS FOR MAKING WET-SKIN TREATMENT COMPOSITIONS	ARONSON, MICHAEL PAUL
<u>10034295</u>	Not Issued	030	12/21/2001	METHOD AND APPARATUS FOR DETECTING OPTIMUM LENS FOCUS POSITION	ARONSON, MICHAEL D.
<u>09884388</u>	Not Issued	030	06/19/2001	MICROEMULSION FACIAL WASHES COMPRISING SPECIFIC OILS	ARONSON, MICHAEL PAUL

<u>09859862</u>	Not Issued	041	05/17/2001	WET-SKIN TREATMENT COMPOSITIONS	ARONSON, MICHAEL PAUL
<u>09859849</u>	Not Issued	061	05/17/2001	METHOD OF ENHANCED MOISTURE OR REDUCED DRYING USING WET-SKIN TREATMENT COMPOSITIONS	ARONSON, MICHAEL PAUL
<u>09796139</u>	<u>6521573</u>	150	02/28/2001	PERSONAL CLEANSING COMPOSITIONS PROVIDING RINSABILITY AND DRAGGY WET SKIN FEEL	ARONSON, MICHAEL PAUL
<u>09643142</u>	<u>6429177</u>	150	08/22/2000	SEPARATING MULTI-PHASE PERSONAL WASH COMPOSITION IN A TRANSPARENT OR TRANSLUCENT PACKAGE	ARONSON, MICHAEL PAUL
<u>09617777</u>	Not Issued	092	07/17/2000	LAN PHONE SYSTEM WITH AUTOMATIC FALLBACK FOR POWER OR NETWORK FAILURE	ARONSON, MICHAEL
<u>09559214</u>	<u>6218348</u>	150	04/26/2000	PROCESS OF MAKING SOAP BAR WITH ENHANCED SKIN BENEFITS COMPRISING ADDING SALTS OF SPECIFIC PROTIC ACID	ARONSON, MICHAEL PAUL
<u>09558821</u>	Not Issued	041	04/26/2000	METHOD OF CLEANSING SKIN AND IMPROVING SKIN CARE IN BAR COMPRISING SOAP, FATTY ACID AND POLYALKYLENE GLYCOL	ARONSON, MICHAEL PAUL
<u>09558810</u>	<u>6342470</u>	150	04/26/2000	BAR COMPRISING SOAP, FATTY ACID, POLYALKYLENE GLYCOL AND PROTIC ACID SALTS IN CRITICAL RATIOS AND PROVIDING ENHANCED SKIN CARE BENEFITS	ARONSON, MICHAEL PAUL
<u>09523131</u>	<u>6399045</u>	150	03/10/2000	LIQUID SUNSCREEN COMPOSITIONS WHICH BOTH DEPOSIT AND LATHER WELL	ARONSON, MICHAEL PAUL
<u>09252711</u>	<u>6265368</u>	150	02/18/1999	AQUEOUS DETERGENT COMPOSITIONS THICKENED USING CARRAGEENAN	ARONSON, MICHAEL PAUL
<u>08970736</u>	<u>6128673</u>	150	11/14/1997	METHOD AND APPARATUS FOR COMMUNICATION AND TRANSLATION OF A PLURALITY OF DIGITAL PROTOCOLS	ARONSON, MICHAEL D.

<u>08903967</u>	<u>5760407</u>	150	07/31/1997	DEVICE FOR THE IDENTIFICATION OF ACNE, MICROCOMEDONES, AND BACTERIA ON HUMAN SKIN	ARONSON, MICHAEL P.
<u>08900654</u>	Not Issued	161	07/25/1997	APPARATUS FOR USE IN A TELEPHONE CALL PROCESSING SYSTEM	ARONSON, MICHAEL D.
<u>08898237</u>	<u>5961992</u>	150	07/22/1997	BENEFIT AGENT COMPOSITIONS COMPRISING MIXTURES OF ALPHA-HYDROXY ESTERS	ARONSON, MICHAEL PAUL
<u>08703747</u>	<u>5759969</u>	150	08/27/1996	PROCESS FOR MAKING AQUEOUS SOLUTION COMPOSITIONS COMPRISING POLYMER HYDROGEL COMPOSITIONS	ARONSON, MICHAEL P.
<u>08412803</u>	Not Issued	166	03/29/1995	LIQUID CLEANSER COMPOSITIONS COMPRISING POLYMER HYDROGEL COMPOSITIONS	ARONSON, MICHAEL P.
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**PALM INTRANET**Day : Thursday
Date: 10/16/2003
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Your Search was:

Last Name = ZHU

First Name = ZHENHE

Application#	Patent#	Status	Date Filed	Title	Inventor Name
<u>09884396</u>	<u>6524242</u>	150	06/19/2001	NON-CONTACT METHOD FOR MEASURING AMOUNT OF SEBUM OR OIL ON SUBSTRATE IN REAL TIME USING FLUORESCENCE DYE	ZHU, ZHENHE
<u>09884395</u>	<u>6475144</u>	150	06/19/2001	NON-CONTACT METHOD FOR MEASURING AMOUNT OF SKIN SEBUM OR OIL IN REAL TIME USING FIBER OPTIC PROBE	ZHU, ZHENHE
<u>09884388</u>	Not Issued	030	06/19/2001	MICROEMULSION FACIAL WASHES COMPRISING SPECIFIC OILS	ZHU, ZHENHE

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United States Patent [19]
Suzuki et al.

[11] **Patent Number:** **4,675,179**
[45] **Date of Patent:** **Jun. 23, 1987**

[54] **COSMETIC EMULSION AND METHOD FOR MAKING THE SAME**

[75] **Inventors:** Toshiyuki Suzuki, Ichikawa; Akira Tsukada, Kodaira; Masanobu Kai, Funabashi, all of Japan

[73] **Assignee:** Kao Corporation, Tokyo, Japan

[21] **Appl. No.:** 701,518

[22] **Filed:** Feb. 14, 1985

[30] **Foreign Application Priority Data**

Mar. 16, 1984 [JP] Japan 59-50547

[51] **Int. Cl.⁴** A61K 7/36; A61K 7/38

[52] **U.S. Cl.** 424/67; 424/68; 514/941

[58] **Field of Search** 514/63, 941; 424/70, 424/66, 68, 67, 63

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Primary Examiner—Dale R. Ore
Attorney, Agent, or Firm—Obloñ, Fisher, Spivak, McClelland & Maier

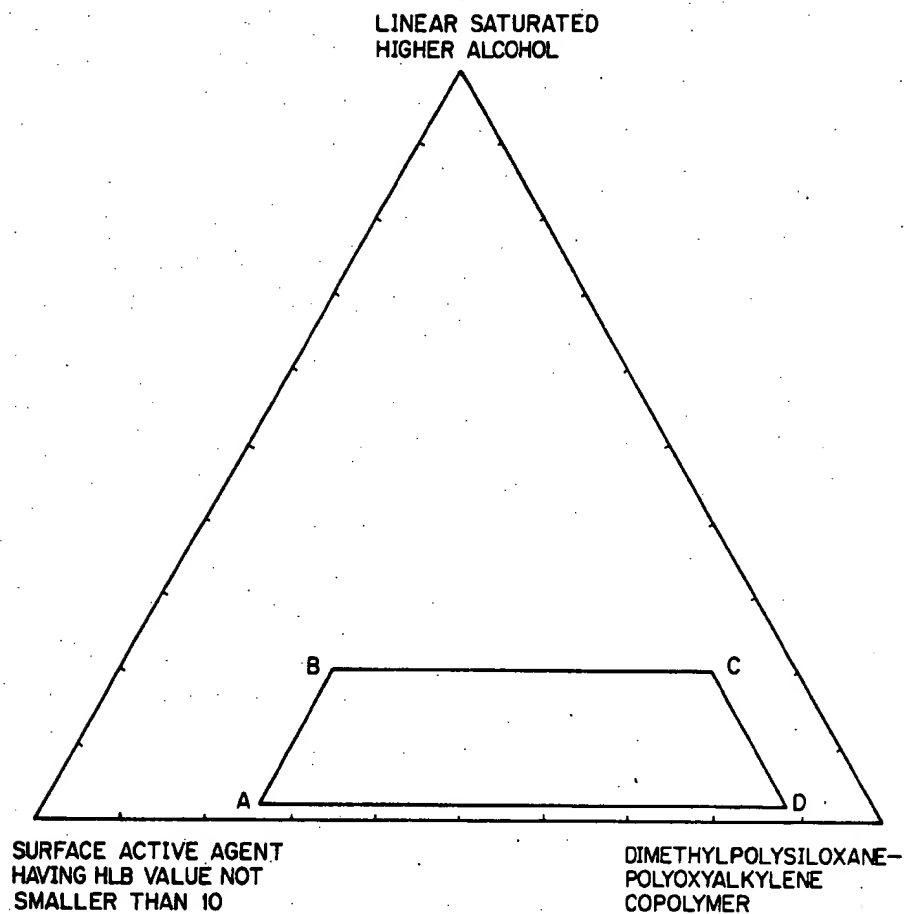
[57] **ABSTRACT**

A cosmetic emulsion of low viscosity which comprises (a) 0.2 to 5 wt % of an emulsifier, (b) 0.5 to 10 wt % of an oil and (3) 85 to 99.3 wt % of a water phase. The emulsifier (a) consists essentially of a dimethylpolysiloxane-polyalkylene copolymer, a surface active agent having an HLB value not smaller than 10, and a linear, saturated higher alcohol having from 12 to 22 carbon atoms. The relative ratios of the dimethylpolysiloxane-polyoxyalkylene copolymer, the surface active agent and the higher alcohol lie within the polygon bounded by the points of a ternary composition diagram of the annexed figure.

When the emulsion is applied to the skin, it gives refreshing feeling to the skin without any stickiness. It also gives appropriate moisture retentivity to the skin.

6 Claims, 1 Drawing Figure

FIGURE



COSMETIC EMULSION AND METHOD FOR MAKING THE SAME

BACKGROUND OF THE INVENTION

(i) Field of The Invention

This invention relates to stable, low viscosity cosmetic emulsions which have the skin refreshed upon application thereof without becoming sticky after the application and which have appropriate moisture retentivity. The invention also relates to a method for making such emulsions.

(ii) Description of the Prior Art

In general, cosmetic emulsions consist of water, oils and emulsifiers and, when applied to the skin, they form an oil film on the surface of the skin. By the coverage with the oil film, a percutaneous water loss is so suppressed that moisture in the horny layer is appropriately retained. The moisture-retentive effect depends on the type and amount of the oil, and thus the type and amount of the oil are suitably controlled according to the purposes.

In order to attain less stickiness and refreshness to the touch by the use of emulsions, it is necessary to reduce the amount of oils and use oils which are less sticky.

The polysiloxane of the general formula (II), (III) or (IV) indicated hereinafter (hereinafter referred to as silicone oil) is able to form a uniform thin film on the skin and is suitable as an oil imparting the stickiness-free smoothness to the touch. However, the silicone oil is rather poor in compatibility with ordinary surface active agents and other oils and has very poor ability of being emulsified, which makes it very difficult to obtain uniform, fine emulsions.

Better stability against coalescence and creaming is obtained when emulsified particles are more uniform and finer. This tendency becomes more pronounced particularly when the viscosity of the system is low. The state of emulsification takes part in the appearance or whiteness of an emulsion. In this sense, optimal results are obtained when the particle size is in the range of from 0.2 to 2 μm . At a smaller particle size, there is obtained a transparent, pale microemulsion. Over the above range, a semitransparent, greyish emulsion is obtained.

In order to further impart refreshness at the time of application, the cosmetic system is preferred to contain ethyl alcohol. In general, addition of ethyl alcohol results in a considerable lowering of emulsion stability of the system.

The emulsion system having such properties as described above should satisfy the following requirements: ethyl alcohol is contained in an aqueous phase; an oil being emulsified is mainly composed of silicone oil and is contained in small amounts; and the system is low in viscosity and has emulsified particles which are fine and uniform in size. However, known emulsification techniques cannot satisfy all the above requirements at the same time.

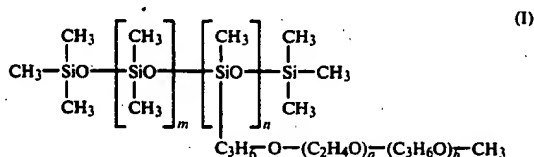
SUMMARY OF THE INVENTION

Under these circumstances, the present inventors have made intensive studies to obtain cosmetic emulsions for which the objects of the invention can be achieved. As a result, it has been found that when a mixture of a specific type of dimethylpolysiloxane-polyoxyalkylene copolymer, a surface active agent having an HLB value not smaller than 10, and a linear, saturated higher alcohol having from 12 to 22 carbon

atoms is used as an emulsifier, to which an aqueous phase comprising ethyl alcohol in a predetermined concentration is added under agitation in a predetermined range of temperature thereby forming one phase region of a gel or a highly viscous liquid, there can be obtained an emulsion with a low viscosity which is fine, uniform and stable and which contains the silicone oil as the main component. In addition, the emulsion composition satisfies the requirements for the cosmetic emulsion. The present invention is based on the above finding.

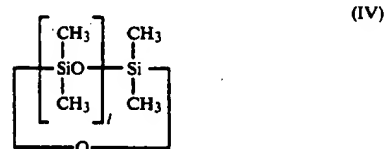
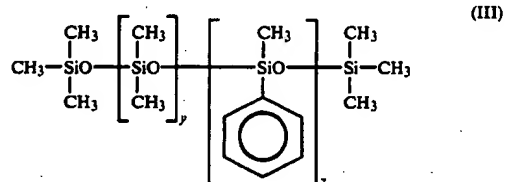
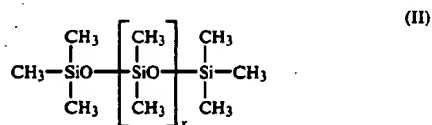
According to one feature of the invention, there is provided a cosmetic emulsion which comprises:

(a) 0.2 to 5 wt% of an emulsifier consisting essentially of (1) a dimethylpolysiloxane-polyoxyalkylene copolymer represented by the general formula (I)



in which a represents an integer of from 10 to 25, b is an integer of from 25 to 35, m is an integer of from 60 to 80, and n is an integer of from 3 to 8, (2) a surface active agent having an HLB value not smaller than 10, and (3) a linear, saturated higher alcohol having from 12 to 22 carbon atoms;

(b) 0.5 to 10 wt% of an oil comprising 90% or more of at least one polysiloxane represented by the general formula (II), (III) or (IV)



in which x represents an integer of from 4 to 100, z is an integer not smaller than 1, y+z is a value from 1 to 100, and l is an integer of from 2 to 5; and

(c) 85 to 99.3 wt% of a water phase comprising 60 to 100 wt%, based on the total water phase, of an ethyl alcohol aqueous solution in which an ethyl alcohol to water ratio by weight is 50:50 to 2:98.

Another feature of the invention resides in provision of a method of making the cosmetic emulsion.

BRIEF DESCRIPTION OF THE DRAWING

The sole FIGURE is a ternary composition diagram showing relative ratios of dimethylpolysiloxane-polyoxyalkylene copolymer, a surface active agent having an HLB value not smaller than 10, and a linear, saturated higher alcohol having 12 to 22 carbon atoms, which constitute an emulsifier of a cosmetic emulsion of the invention.

DETAILED DESCRIPTION OF THE INVENTION AND PREFERRED EMBODIMENTS

The dimethylpolysiloxane-polyoxyalkylene copolymer of (1), which is one component of the emulsifier (a) of the cosmetic emulsion according to the invention, should preferably have a clouding point, as an aqueous solution thereof, of 25° to 40° C. If the clouding point of the aqueous solution exceeds 50° C., one phase emulsion cannot be formed during the emulsification and the emulsified particles of the emulsion become coarse. On the other hand, when the clouding point is lower than 20° C., it does by no means serve as a surface active agent and thus no emulsification proceeds. The surface active agent (2) may be those agents having an HLB value not smaller than 10, which may be used singly or in combination. In particular, surface active agents having an HLB value of from 11 to 16 are preferred. Specific examples of the surface active agents include polyoxyethylene alkyl ethers, polyoxyethylene and fatty acid esters, fatty acid esters of polyoxyethylene and sorbitan, fatty acid esters of polyoxyethylene and glycerine, polyoxyethylene hardened castor oils, polyglycerine and fatty acid esters, sucrose and fatty acid esters, and the like.

The linear, saturated higher alcohols (3) should have from 12 to 22 carbon atoms, preferably 14 to 18 carbon atoms. When the number of carbon atoms are below 10, the action of stabilizing a material being emulsified lowers to a substantial extent with offensive odor. When the number of carbon atoms exceeds 22, there is the tendency toward crystallization as time passes.

The emulsifier which is component (a) should preferably have relative ratios of (1), (2) and (3) within a polygon (including each side thereof) bounded by the points A(25:73:2), B(25:55:20), C(70:10:20) and D(88:10:2) of the ternary composition diagram of the sole FIGURE. The emulsifier is used in an amount of 0.2 to 5 wt% (hereinafter referred to simply as %) of the cosmetic emulsion and preferably in an amount of 0.4 to 3%. Outside the range, the emulsification does not proceed satisfactorily.

The oil component (b) should contain 90% or more of at least one silicone oil represented by the general formula (II), (III) or (IV). Aside from these silicone oils, there may be used hydrocarbons such as liquid paraffin, paraffin wax, ceresin, squalane and the like, natural animal and plant oils such as olive oil, jojoba oil, mink oil and the like, and synthetic ester oils such as octyldodecyl myristate. These oils are used in an amount of 0.5 to 10%, preferably 1 to 5%, of the cosmetic emulsion. Over 10%, oiliness is unfavorably strengthened.

The aqueous phase (c) should have a ratio by weight of ethyl alcohol and water in the range of 50/50 to 2/98. The ratio is preferably in the range of 30/70 to 5/95. When the ethyl alcohol/water ratio exceeds 50/50, the emulsification becomes unstable and the resulting emulsion is more stimulative against the skin. If, on the con-

trary, the ratio of ethyl alcohol/water is smaller than 2/98, refreshness does not appear. The aqueous phase may further comprise humectants such as glycerin, sorbitol, maltitol propylene glycol, dipropylene glycol, 1, 3-butylene glycol, sodium pyrrolidonecarboxylate, polyoxyethylene methylglucoside, polyoxypropylene methylglucoside, glucose and the like amino acids such as glycine, serine, proline and the like, and medical agents such as antiinflammatory agents, bactericides, vitamins and the like. The aqueous phase is used in an amount of 85 to 99.3%, preferably 92 to 98.6%, of the cosmetic emulsion.

The cosmetic emulsion of the invention is preferred to be low in viscosity and has generally a viscosity of below 100 centipoises at 25° C., preferably below 20 centipoises. Over 100 centipoises, the resulting emulsion is felt sticky upon application thereof.

The cosmetic emulsion of the invention is prepared by the procedure which comprises adding an ethyl alcohol aqueous solution, which has an ethyl alcohol/water ratio by weight of 20/80 to 70/30, to a mixture of (a) 0.2 to 5 parts by weight of an emulsifier and (b) 0.5 to 10 parts by weight of an oil under agitation at a temperature of from 20° to 45° C. to produce an o/w emulsion, and, if necessary, further adding water or an ethyl alcohol aqueous solution to give an intended composition.

In the practice of the invention, when the ethyl alcohol aqueous solution having an ethyl alcohol/water ratio by weight of 20/80 to 70/30, preferably 30/70 to 60/40, is added in an amount of 0.5 to 5 times by weight the mixture of (a) and (b), a gellike or highly viscous liquid one phase product is produced. Further addition of ethyl alcohol results in an o/w emulsion. If necessary, water or an ethyl alcohol aqueous solution is so added that the ratio by weight of ethyl alcohol/water is in the range of 50/50 to 2/98. The finally added water or ethyl alcohol aqueous solution should preferably be controlled at a temperature of from 5 to 45° C.

One of features of the invention resides in that one phase region is formed by emulsification using a high content of ethanol, through which region uniform and fine emulsified particles are obtained. The fact that fine emulsified particles are obtained through the one phase region during the course of the emulsification is known per se with regard to ordinary oil/emulsifier/water systems and oil/emulsifier/water/dihydric alcohol systems ("Journal of Chemical Society of Japan, 10, 1399 (1983), by Sagitani). The method for making cosmetic emulsions according to the invention is different from these known methods in that one phase region is formed under conditions of a high ethyl alcohol concentration in the system comprising an oil chiefly made of silicone oil, thereby obtaining a stable, low viscosity emulsion composition comprising fine, uniform emulsified particles. Moreover, it is also known from, for example, Japanese Laid-open Patent Application No. 58-131910 that polydiorganosiloxane-polyoxyalkylene copolymers are effective for emulsifying silicone oils. The present invention is also different from this prior art in that the emulsifier useful in the present invention consists of dimethylpolysiloxane-polyoxyalkylene copolymer, a surface active agent having an HLB value not smaller than 10, and a linear, saturated higher alcohol having from 12 to 22 carbon atoms in specific ratios, that an aqueous solution of the dimethylpolysiloxane-polyoxyalkylene copolymer has such a low clouding point of from 20° to 45° C. that it does not serve as an emulsifier

under ordinary emulsifying conditions, but shows good performance as the emulsifier by defining the content of ethyl alcohol and the emulsification temperature in certain ranges, respectively.

The present invention is described by way of examples.

EXAMPLE 1

Cosmetic emulsions having the formulations indicated in Table 1 were prepared to check the emulsion stability. The results are shown in Table 2.

TABLE 1

Ingredients	Composition (%)						
	Products of Invention			Comparative Products			
	A	B	C	D	E	F	G
Oil Phase:							
Dimethylpolysiloxane-polyoxyalkylene copolymer (clouding point: 30° C.)	0.5	0.5	0.93	0.5	—	0.5	0.81
Dimethylpolysiloxane-polyoxyalkylene copolymer (clouding point: 80° C.)	—	—	—	—	0.5	—	—
POE(20) Sorbitan monooleate (HLB: 15)	0.5	0.4	0.12	0.2	0.5	—	0.28
Sorbitan monooleate (HLB: 4.3)	—	—	—	—	—	0.5	—
Cetanol	0.1	0.08	0.05	0.4	0.1	0.1	0.01
Dimethylpolysiloxane	1.5	2	1.5	1.5	1.5	1.5	1.5
Methylphenylpolysiloxane	1.5	—	1.5	1.5	1.5	1.5	1.5
Perfume	small amount	small amount	small amount	small amount	small amount	small amount	small amount
Alcohol Phase:							
Ethyl alcohol	10	20	10	10	10	10	10
Water	10	25	10	10	10	10	10
Glycerine	3	2	3	3	3	3	3
Aqueous Phase:							
Water	balance	balance	balance	balance	balance	balance	balance

Preparation: The oil phase was heated to 60° C. and all the ingredients were uniformly dissolved, followed by cooling down to 36° C. and keeping at a constant level. To the oil phase was added under agitation the alcohol phase which was controlled at 36° C. Thereafter, the aqueous phase of 25° C. was added to the mixture to give an intended composition.

TABLE 2

State of Emulsion	Stability (preserved for 1 month)	
<u>Products of Invention:</u>		
A good	40° C.	no change
	5° C.	no change

TABLE 2-continued

State of Emulsion	Stability (preserved for 1 month)	
B good	40° C.	no change
	5° C.	no change
C good	40° C.	no change
	5° C.	no change
Comparative Products:		
D rather poor	40° C.	separation
	5° C.	separation as crystals
E separated immediately		

F after preparation separated immediately after preparation

G rather poor 40° C. separation 5° C. separation

As will be clear from Table 2, the cosmetic emulsions of the invention showed good stability.

EXAMPLE 2

Emulsion compositions of the formulations indicated in Table 3 were prepared to check the emulsion stability and viscosity. The results are shown in Table 4. The preparation of each emulsion was made in the same manner as in Example 1.

TABLE 3

Ingredients	Composition (%)							
	Products of Invention		Comparative Products					
	H	I	J	K	L	M	N	O
Oil Phase:								
Dimethylpolysiloxane-polyoxyalkylene copolymer (clouding point: 30° C.)	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3
POE(20) hexadecyl ether (HLB: 16)	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Cetostearyl alcohol	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Methylphenylpolysiloxane	1.0	1.0	1.0	10.0	1.0	1.0	1.0	1.0
Cyclic dimethylpolysiloxane	2.0	1.0	—	6.0	1.0	1.0	1.0	1.0
Octyldodecyl myristate	0.2	—	1.0	—	—	—	—	—
Perfume	small amount	small amount	small amount	small amount	small amount	small amount	small amount	small amount
Alcohol Phase:								
Ethyl alcohol	8	15	15	15	50	15	—	1.5
Water	12	15	15	15	30	3	15	5

TABLE 3-continued

Ingredients	Composition (%)							
	Products of Invention		Comparative Products					
	H	I	J	K	L	M	N	O
Dipropylene glycol	4	3	3	3	3	3	3	3
Aqueous Phase:								
Water	balance	balance	balance	balance	balance	balance	balance	balance

TABLE 4

Emulsion State (immediately after preparation)	Stability (preserved (for 1 month))	Viscosity (25° C.) (cps.)	15
Products of Invention:			
H good	40° C. no change 5° C. no change	6	
I good	40° C. no change 5° C. no change	4	
Comparative Products:			
J good	40° C. separation 5° C. separation	4	
K rather poor	40° C. separation 5° C. no change	600	
L good	40° C. separation 5° C. separation	3	
M separated immediately after preparation	—	—	
N separated immediately after preparation	—	—	
O rather poor	40° C. separation 5° C. separation	6	

As will be clear from Table 4, the cosmetic emulsions of the invention showed good stability though very low in viscosity.

EXAMPLE 3

Five samples, in total, including the cosmetic emulsion A obtained in Example 1 and the cosmetic emulsion I of Example 2, both of which were the products of the invention, and the comparative emulsions J, K and O of Example 2 were organoleptically evaluated by 10 expert panelers with regard to the feelings to the touch. The results are shown in Table 5 below.

TABLE 5

	Refresh- ness	Sticki- ness	Oili- ness	Affinity	Appear- ance
Products of Invention					
A	1.6	-0.8	-1.2	+1.5	+1.8
I	2.0	-1.6	-1.9	+1.4	+1.6
Comparative Products:					
J	2.0	+1.1	-0.5	-0.2	+1.6
K	1.8	+0.8	+1.7	-1.4	-1.0
O	-0.8	-1.4	-0.8	+0.4	-1.6
Evaluation Standard:					
	Refresh- ness	Sticki- ness	Oiliness	Affinity for Skin	Appear- ance
+2	Very good	Very great	Very great	Very good	Very good
+1	Rather good	Rather great	Rather great	Rather good	Rather good
0	Moderate	Moderate	Moderate	Moderate	Moderate
-1	Bad	Small	Small	Rather poor	Rather poor
-2	Very bad	Very small	Very small	Very poor	Very poor

(The values are average values of ten panelers.)

As will be seen from Table 5, the products of the invention are better in refreshness, less in stickiness and

oiliness, and better in affinity for skin and appearance than the comparative products.

EXAMPLE 4

Emulsion compositions P, Q of the invention having formulations indicated in Table 6, a comparative product R free of any oils, and commercially sold lotion S were each applied onto the flexor side of the forearm of men, followed by measurement of a skin conductance. The skin conductance corresponds to a constant of water in the epidermic corneum, meaning a greater amount of water at a higher conductance value. The measurement was effected using a high frequency impedance meter (Capacitance-conductance Meter Model 354, by IBS Co., Ltd.). The results are shown in Table 7 below.

TABLE 6

Ingredients	Composition (%)		
	Products of Invention	Comparative Product	
	P	Q	R
Oil Phase:			
Dimethylpolysiloxane-polyoxyalkylene copolymer (clouding point: 28° C.)	0.4	0.4	—
POE(60) hardened castor oil (HLB: 14.5)	0.9	0.9	0.9
Stearyl alcohol	0.1	0.1	—
Dimethylpolysiloxane	2.5	2.5	—
Methylphenylpolysiloxane	1	1	—
Perfume	small amount	small amount	small amount
Alcohol phase:			
Ethyl alcohol	12	12	12
Water	16	16	16
Glycerine	4	—	4
Aqueous phase:			
Water	balance	balance	balance

(The comparative product R was a transparent liquid, not an emulsion.)

Preparation: Prepared in the same manner as in Example 1.

TABLE 7

Tested Sample	Time after Application of Tested Sample (Minutes)				
	10	30	60	90	120
Products of Invention:					
P	360	320	298	316	300
Q	336	293	288	280	288
Comparative Products:					
R	170	100	98	95	92
S	133	91	88	87	83
(Commercial available lotion)					
Control (nothing applied on)	82	82	80	83	80